IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK
MANHATTAN DIVISION

VIRTUAL SOLUTIONS LLC, Plaintiff, v. **MICROSOFT CORP.,** Defendant.	Case No. 12-CV-1118 (SAS)

PLAINTIFF VIRTUAL SOLUTIONS LLC'S RESPONSE TO MICROSOFT CORPORATION'S RULE 56.1 STATEMENT OF UNDISPUTED MATERIAL FACTS AND VIRTUAL SOLUTIONS LLC'S STATEMENT OF ADDITIONAL UNDISPUTED MATERIAL FACTS

Pursuant to Local Civil Rule 56.1, Virtual Solutions LLC ("Virtual Solutions") hereby responds to Microsoft Corporation's ("Microsoft") statement of undisputed facts and sets forth its statement of additional undisputed material facts.

VIRTUAL SOLUTIONS' RESPONSE TO MICROSOFT'S STATEMENT OF UNDISPUTED MATERIAL FACTS

I. INTRODUCTORY FACTS

1. Admitted.

2. Virtual Solutions admits that the '353 patent describes a theater into which the images of animals and objects are projected for viewing by an audience, but denies that this is the only way described in the '353 patent for displaying the interactive environment. *See e.g.,* '353 patent, 3:1-17 (Dkt. No. 39-1) (hereinafter "'353 patent").

3. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, 3:22-29.

4. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, 2:14-19, 4:55-5:14.

5. Virtual Solutions admits that the '353 patent refers to projected animals and objects as "virtual actors," but denies that projection is required or that "virtual actors" are limited to animals or objects. *See e.g.,* '353 patent, 3:1-17, 4:56-61.

6. Admitted.

7. Admitted.

8. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, 2:3-5.

9. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, 4:66-5:14.

10. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, 11:61-12:13.

11. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, Figure 3 and accompanying text.

12. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, 4:55-5:14, 5:47-6:52.

13. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, 2:17-18.

14. Denied. Defendant's characterization of the '353 patent is inaccurate. Virtual Solutions admits that the excerpt of the '353 patent cited by Defendant states what it states. '353 patent, 2:17-18.

15. Admitted.

16. Admitted.

II. FACTS CONCERNING "PHYSICAL CHARACTERISTIC SIGNAL"

17. Admitted.

18. Admitted.

19. Admitted.

20. Admitted.

21. Admitted.

22. Denied. *See infra* ¶¶ 66-86.

23. Denied. *See infra* ¶¶ 66-86.

24. Denied. *See infra* ¶¶ 66-86.

25. Admitted.

26. Denied. Virtual Solutions does not have sufficient information as to the examiner's understanding and therefore denies paragraph 26.

27. Denied. Defendant's characterization of the '353 prosecution history is inaccurate. In addition, Virtual Solutions does not have sufficient information as to the

assumptions, if any, made by the examiner. Virtual Solutions admits that the excerpt of the '353 prosecution history cited by Defendant states what it states. *See* MS00006740.

28. Admitted.

29. Admitted.

30. Denied. *See infra* ¶¶ 66-86.

31. Denied. *See infra* ¶¶ 66-86.

32. Denied. *See infra* ¶¶ 66-86.

33. Denied. *See infra* ¶¶ 66-86.

34. Denied. *See infra* ¶¶ 66-86.

III. FACTS GOVERNING "VIRTUAL ENVIRONMENT STIMULUS GENERATOR"

35. Admitted.

36. Admitted.

37. Denied. *See infra* ¶¶ 88-95.

38. Denied. *See infra* ¶¶ 88-110.

39. Admitted.

40. Denied. *See infra* ¶¶ 88-110.

41. Denied. *See infra* ¶¶ 88-110.

42. Admitted.

43. Denied. *See infra* ¶¶ 88-110.

44. Virtual Solutions admits that paragraph 44 contains one excerpt from the '353 patent discussing the virtual environment stimulus generator, but denies that this is the only discussion in the '353 patent pertaining to the virtual environment stimulus generator.

45. Denied. *See infra* ¶¶ 88-110.

46. Denied. *See infra* ¶¶ 88-110.

47. Virtual Solutions admits that paragraph 44 contains one excerpt from the '353 patent discussing the virtual environment stimulus generator, but denies that this is the only discussion in the '353 patent pertaining to the virtual environment stimulus generator.

48. Denied. *See infra* ¶¶ 98-107.

49. Admitted.

50 Denied. *See infra* ¶¶ 98-107.

51. Denied. *See infra* ¶¶ 88-110.

VIRTUAL SOLUTIONS' STATEMENT OF ADDITIONAL UNDISPUTED MATERIAL FACTS

I. GENERAL FACTS PERTAINING TO THE '353 PATENT

52. The '353 patent is titled "Influencing Virtual Actors in an Interactive Environment." '353 patent.

53. The '353 patent generally relates to a method of influencing the movement and action of virtual actors in an interactive theater. '353 patent, Abstract.

54. The theater area described in the '353 patent could be a dome, closed room or even and open area and the projection of images could be replaced by holographic display or any type of presentation. '353 patent, 3:14-17.

55. The inventions claimed in the '353 patent accomplish influencing the movement and action of virtual actors by providing a plurality of sensors that detect and sense at least one physical characteristic of a visitor, or user. '353 patent, Claim 1.

56. The sensors then generate sensor signals that are interpreted to provide a physical characteristic signal that provides information on visitor/user activity and location in the theater area. *Id.*

57. In conjunction with this, the claimed inventions provider a behavior model for the virtual actors in the interactive environment. *Id*. *See e.g.,* '353 patent, 3:31-43, 4:51-65, 5:48-56.

58. An example of such a virtual actor could be an animal, zombie, or other type of character. '353 patent, 4:56-61, 15:57-60.

59. The claimed inventions then analyze the physical characteristic signal, a change in time of the signal and the behavior model to generate a behavior vector. '353 patent, Claim 1.

60. The behavior vector is based on at least the physical characteristic signal, which includes position information pertaining to the visitor/user, and the behavior model, which also includes position information pertaining to the visitor/user. '353 patent, Claim 1; *see also* Figures 3 and 4 and accompanying text.

61. In the claimed inventions, the behavior vector is generated in real-time to allow the virtual actor(s) to react and interact, in real-time, with visitors/users based on the visitor's/user's actions and the evolution of those actions. '353 patent, Claim 1.

62. This provides a more immersive, interactive and life-like experience for the visitor/user. '353 patent, 2:14-19, Claim 1.

63. The inventions set forth in the '353 patent also include providing a virtual environment stimulus generator, which is tasked with analyzing the virtual environment database (e.g., the information pertaining to the virtual environment) and generating a virtual environment stimulus in response to the analysis. '353 patent, Claim 8.

64. This stimulus could be a reaction that a particular character in the interactive environment may have to an action taken by a visitor/user (e.g., fish swims away or zombie dies). '353 patent, 6:33-42.

65. The stimulus can also be the creation of a new virtual actor/character in the interactive environment in response to a specific action (e.g., fish swims away so create new fish or zombie dies so create new zombie). '353 patent, 3:58-67, 6:33-42.

II. FACTS PERTAINING TO "PHYSICAL CHARACTERISTIC SIGNAL"

66. Claim 1 of U.S. Patent No. 6,507,353 states in part:

> … interpreting said sensor signals to provide at least one **physical characteristic signal including position information,** …
>
> … to generate a behavior vector of said at least one virtual actor using **said position information** and **said at least one physical characteristic signal** ….

'353 patent, Claim 1.

67. Position information is merely information, or data, that pertains to the location of visitors in the theater area. Defendant's Memorandum of Law in Support of Motion for Summary Judgment of Invalidity for Indefiniteness, p. 7 (Dkt. No. 44); *see infra* ¶¶ 67-70; Declaration of Slava Zavadsky, Ph.D. (Nov. 16, 2012) ("Zavadsky Decl.") ¶ 17.[1]

68. Figures 2 and 3 depict PositionalSensor 21, 46, which obtains position information and provides that to a PositionalStimulusGenerator 24, 49, which in turns provides it to the Behavioral Module 28, 58, 68. '353 patent, Figures 2 and 3 and accompanying text; Zavadsky Decl. ¶ 19.

69. The '353 patent describes the SensorData class 87, which is the data class that stores the "position information" received from the sensors, such as the Positional Sensor 21, 46. '353 patent, 11:36-49, Figure 10; Zavadsky Decl. ¶ 19.

70. The SensorData class 87 is further subdivided into the PhysicalSensorData class 91 and the VirtualSensorData class 93. 11:36-49, Figure 10; Zavadsky Decl. ¶ 19.

[1] Dr. Zavadsky's declaration is being filed concurrently with this statement.

71. Table 1 in the '353 patent shows that information from the sensors, such as positional information (in this example, X,Y,Z coordinates), is stored. '353 patent, 11:18-35; Zavadsky Decl. ¶ 17.

72. The "physical characteristic signal" is a signal that includes the position information. '353 patent, Claim 1.

73. The fact that the physical characteristic signal includes the position information does not mean the position information cannot be used independent of the physical characteristic signal. '353 patent, Figures 3 and 4 and accompanying text; Zavadsky Decl. ¶¶ 17-26.

74. Figure 3 shows that Positional Sensor 46 sends "position information" to Positional Stimulus Generator 49, which then sends the information to Behavioral Module 58, 68. '353 patent, Figure 3 and accompanying text; Zavadsky Decl. ¶ 19.

75. Figure 4 shows that information from Plurality of Sensors 65, including "position information," is sent to Interpreter 66 to create the "physical characteristic signal that includes position information." '353 patent, Figure 4 and accompanying text; Zavadsky Decl. ¶ 20.

76. Figure 4 also shows that the Behavior Vector is derived from Analyzer 67, which receives the Physical Characteristic Signal as well as information from the Behavior Module 68. '353 patent, Figure 4 and accompanying text; Zavadsky Decl. ¶¶ 20-21.

77. The '353 patent states:

> An interpreter 66 filters and analyzes the raw signals from these sensors and produces a physical characteristic signal which can be a bus or a single vector. The analyzer 67 reads from the behavioral module 68 and produces a rendering vector which will be used to display the environment.

'353 patent, 7:6-10.

78. Figure 4 shows the generation of a behavior vector for at least one virtual actor using: (1) position information (from the Behavioral Module); and (2) the physical characteristic signal that also includes the position information. '353 patent, Figure 4 and accompanying text; Zavadsky Decl. ¶¶ 20-21.

79. The term "physical characteristic signal including position information" is not insolubly ambiguous. Zavadsky Decl. ¶¶ 26-27.

80. One of ordinary skill in the art would understand that the term "physical characteristic signal" is not insolubly ambiguous based on the intrinsic evidence as well as his/her knowledge of the relevant art area. Zavadsky Decl. ¶¶ 26-27.

81. The term "using said position information and said at least one physical characteristic signal" is not insolubly ambiguous. Zavadsky Decl. ¶¶ 26-27.

82. Position information is "information" that can be used independently of the "physical characteristic signal," as part of the "physical characteristic signal," or both. Zavadsky Decl. ¶ 26.

83. The claims indicate that "the position information" is used in several other ways. *See e.g.,* '353 patent, Claims 10, 13 and 15.

84. Claim 10 indicates that a new actor is created using the physical characteristic signal, the behavior model and the position information. '353 patent, Claim 10.

85. Claims 13 and 15 indicate that a reaction to the physical characteristic signal is generated using the behavior model and the position information. '353 patent, Claims 13 and 15.

86. The ability to use "position information," which is data, in multiple manners is contemplated by the '353 patent. *See e.g.,* '353 patent, Claims 1, 10, 13 and 15.

87. One of ordinary skill in the art would be able to ascertain the bounds of the claim 1, including the term "physical characteristic signal," when read in light of the specification. Zavadsky Decl. ¶¶ 26-27.

III. FACTS PERTAINING TO "VIRTUAL ENVIRONMENT STIMULUS GENERATOR"

88. The term "virtual environment stimulus generator" does not use the catch-word "means." '353 patent, Claim 1.

89. The term "virtual environment stimulus generator" does not use generic structural language such as "means," "element," or "device." Zavadsky Decl. ¶ 36.

90. Claim 8 uses specific structural language such as "generator" and "virtual environment" that have well-known meanings to those of skill in the art. Zavadsky Decl. ¶¶ 31-34; Exhibits 1-5.[2]

91. The term "generator," as used in the computer context is defined as: A program that produces a particular type of output on demand, as random numbers, an application program, or a report. Exhibit 1; Zavadsky Decl. ¶ 31.

92. The term "generator," as used in the computer context is defined as: A routine that constructs other routines or subroutines using given parameters, for specific applications Exhibit 2; Zavadsky Decl. ¶ 31.

93. The term "generator," as used in the computer context is defined as: A program that produces specific programs from the definition of an operation. Exhibit 3; Zavadsky Decl. ¶ 31.

[2] All citations to "Exhibit ___" refer to exhibits attached to the Declaration of Timothy Grochocinski in Support of Virtual Solutions LLC's Response in Opposition to Defendant Microsoft Corporation's Motion for Summary Judgment of Invalidity for Indefiniteness, filed concurrently herewith.

94. The term "virtual environment" has a well-known structural meaning to those of skill in the art. Zavadsky Decl. ¶ 32.

95. The term "virtual environment" is defined as: "a computer-generated, three-dimensional representation of a setting in which the user of the technology perceives themselves to be and within which interaction takes place." Exhibit 4; Zavadsky Decl. ¶ 32.

96. The terms "virtual environment" and "virtual reality" are defined as: "computer-simulated environments that can simulate physical presence in places in the real world, as well as in imaginary worlds." Exhibit 5; Zavadsky Decl. ¶ 32.

97. Claim 8 is a method claim that claims the step of "providing a virtual environment stimulus generator …." '353 patent, Claim 8.

98. Claim 1 is a method claim that claims the steps of "providing a plurality of sensors detecting and sensing" and "providing a behavior model for at least one virtual actor" (claim 1). '353 patent, Claim 1.

99. The '353 patent states:

> The biophysical model action generator 30 also sends a virtual environment update to the virtual environment database 26. This database comprises all data concerning all actors at any point in time**. The Virtual Environment Stimulus Generator 27 reads information from this database 26 in order to calculate the occurrence of random events such as the apparition of new actors, for example. Once the Virtual Environment Stimulus Generator 27 decides that a new actor should be created, a signal is sent to the new actor creation module 29.**

'353 patent, 3:58-67.

100. The '353 patent also states:

> A virtual environment database 51 keeps track, as explained earlier, of all activities in the dome. **The virtual environment stimulus generator 52 computes random events and can create new actors. It can also generate a reaction using the reaction generator 56, which will be added 57 to the overall reaction generator 59.** A new actor creator 60

> uses the signal from the overall reaction generator 59 and the virtual environment stimulus generator 52 and decides on a reaction which is fed to the biophysical model action generator 62 of the new actor.

'353 patent, 6:33-42.

101. The '353 patent detail, in prose, the algorithm performed by the "virtual environment stimulus generator." '353 patent, 3:58-67, 6:33-42; Zavadsky Decl. ¶¶ 40-43.

102. Figures 2 and 3 provide flow charts showing the relationship of the virtual environment stimulus generator 27, 52 to the virtual environment database 26, 51 and the new actor creation module 29, 60 and reaction generator 56. '353 patent, Figures 2 and 3 and accompanying text; Zavadsky Decl. ¶¶ 40-43.

103. The virtual environment stimulus generator reads information from the virtual environment database, analyzes that information to determine if a new actor should be created or a reaction should be generated and, once that determination is made, it sends a signal to the new actor creation module or the reaction generator. '353 patent, 3:58-67, 6:33-42, Figures 2 and 3 and accompanying text; Zavadsky Decl. ¶ 42.

104. One of ordinary skill would understand that the '353 patent connotes sufficient structure corresponding to the "virtual environment stimulus generator" to ascertain the meaning of claim 8. Zavadsky Decl. ¶ 46.

105. In describing the StimuliGenerator class 89, the '353 patent states:

> This class is the core of the spatial module. Known by the feedback controller of the system (the class VirtualWorld 115), it collects, at a pre-established frequency, through a call to its public method calcStimuli() 90, the data relative to the sensors (via the classes defined above) and creates a linked list of stimuli, which will be returned to the calling function.

'353 patent, 11:50-57.

106. Figure 8 in the '353 patent provides a "class diagram of the entire system's software components to be described with respect to the modules." '353 patent, Figure 8 and accompanying text.

107. Figure 8 in the '353 patent shows the StimuliGenerator 89 class and its components, including SensorTable, which stores data received from SensorData 87, and the methods CalcStimuli 90 and GetStimuliData 92. '353 patent, Figure 8 and accompanying text.

108. The '353 patent identifies a specific computer class and methods that can be used to implement the "virtual environment stimulus generator." '353 patent, 11:50-57, Figures 8, 10 and 11 and accompanying text; Zavadsky Decl. ¶¶ 40-46.

109. Dr. Bobick's declaration and opinions are completely void of any discussion of the StimuliGenerator class 89, the CalcStimuli 90 and GetStimuliData 92 methods, and the exemplar calculation that is contained in the '353 patent utilizing the StimuliGenerator class 89. *See generally* Bobick Decl. (Dkt. No. 45).

110. Dr. Zavadsky has opined that sufficient structure is disclosed in the '353 patent that corresponds to the term "virtual environment stimulus generator" to allow one skilled in the art to understand that the disclosure encompassed a structure for "virtual environment stimulus generator." Zavadsky Decl. ¶ 46.

111. Dr. Zavadsky has opined, the term "virtual environment stimulus generator" itself connotes sufficient structure. Zavadsky Decl. ¶¶ 39, 46.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing was served on all counsel of record via the Court's CM/ECF system on November 16, 2012.

/s/ Timothy E. Grochocinski
Timothy E. Grochocinski